

What is claimed is:

1. A method of repairing a section of pipe having a defect, the pipe having an internal diameter, comprising:
  - applying a first split sleeve and a second split sleeve to the pipe to partially circumscribe the pipe at the defect;
  - functionally associating a first end of the first split sleeve to a first end of the second split sleeve; and
  - applying a compressive force with a compression unit until the internal diameter of the pipe experiences compressive hoop strain.
2. The method of claim 1 wherein the compressive hoop strain is substantially uniform within the section of pipe, along a length of the section of pipe, being repaired.
3. The method of claim 2 wherein the compressive hoop strain is at least 100 microstrain in compression.
4. The method of claim 3 wherein the steps of applying the first split sleeve, functionally associating a first end of the first split sleeve, and applying a compressive force are performed when the pipe section is at an installation pressure, the at least 100 microstrain in compression being experienced when the pipe is at a maximum operating pressure.
5. The method of claim 3 wherein the resulting repair is an acceptable permanent repair.
6. The method of claim 3 in which the step of functionally associating the first end of the first split sleeve to the first end of the second split sleeve further comprises directly

connecting the first end of the first split sleeve with the first end of the second split sleeve.

7. The method of claim 3 in which the step of functionally associating the first end of the first split sleeve to the first end of the second split sleeve further comprises connecting a first connector plate to the end of the first split sleeve and connecting the first connector plate to the first end of the second split sleeve.

8. The method of claim 7 further comprising:

functionally associating a second end of the first split sleeve and a second end of the second split sleeve to circumscribe the pipe subsequent to applying the compressive force.

9. The method of claim 8 wherein the step of functionally associating the second end of the first split sleeve and the second end of the second split sleeve further comprises:

connecting a second connecting member to overlap a gap between the second end of the first split sleeve and the second end of the second split sleeve,  
wherein the first split sleeve, the second split sleeve and the second connecting member circumscribe the section of pipe.

10. The method of claim 9 wherein the step of connecting the second connecting member comprises welding.

11. The method of claim 9 further comprising:

removing the compression unit after connecting the second end of the first split sleeve to the second end of the second split sleeve.

12. The method of claim 11 further comprising cleaning an outer surface of the pipe prior to applying the first split sleeve and the second split sleeve to the pipe.

13. The method of claim 12 further comprising cleaning an inner surface of the first split sleeve and an inner surface of the second split sleeve prior to applying the first and second split sleeve.

14. The method of claim 13 further comprising dry-fitting the first split sleeve and the second split sleeve to the pipe following the step of cleaning.

15. The method of claim 14 further comprising applying epoxy filler to the outer surface of the pipe prior to applying the first split sleeve and the second split sleeve to the pipe.

16. The method of claim 11 in which the step of applying the compressive force further comprises:

measuring a distance between a first measurement mark on the first split sleeve and a second measurement mark on the second connector plate.

17. The method of claim 11 further comprising:

determining the force required to achieve using maximum operating conditions under which the pipe operates prior to applying the force.

18. The method of claim 17 wherein the step of determining the force further comprises determining the force required to achieve at least 100 compressive microstrain on the inner diameter of the pipe after an installation pressure is increased to a specified maximum operating pressure.

19. The method of claim 18 in which the step of applying the force further comprises tightening a hex nut on a stud connecting a top assembly on the first split sleeve and a bottom assembly on the second split sleeve.

20. The method of claim 19 further comprising hingedly attaching the top assembly to the first split sleeve and hingedly attaching the bottom assembly to the second split sleeve.

21. A method of reinforcing a section of pipe having a defect, the pipe section having an internal diameter, comprising:

applying a first split sleeve and a second split sleeve to the pipe section to

partially circumscribe the pipe at the defect;

connecting a first end of the first split sleeve to a first end of the second split sleeve;

applying a compressive force with a compression unit until the internal diameter of the pipe experiences compressive shear hoop strain;

wherein the compressive hoop strain is substantially uniform and exceeds a predetermined value along a length of the section of pipe being repaired.

22. The method of claim 21 wherein the compressive hoop strain is 100 microstrain in compression.

23. The method of claim 22 wherein the steps of applying the first split sleeve, functionally associating a first end of the first split sleeve, and applying a compressive force are performed when the pipe section is at an installation pressure, the at least 100 microstrain in compression being experienced when the pipe is at a maximum operating pressure.

24. The method of claim 23 wherein the resulting repair is an acceptable permanent repair.

25. The method of claim 23 further comprising:

connecting a second connecting member to overlap a gap between the second end of the first split sleeve and the second end of the second split sleeve, wherein the first split sleeve, the second split sleeve and the second connecting member circumscribe the section of pipe; and

removing the compression unit after connecting the second end of the first split sleeve to the second end of the second split sleeve.

26. The method of claim 25 further comprising:

determining the force required to achieve using maximum operating conditions under which the pipe operates prior to applying the force.

27. The method of claim 26 in which the step of applying the force further comprises tightening a hex nut on a stud connecting a top assembly on the first split sleeve and a bottom assembly on the second split sleeve.

28. A method of reinforcing a section of pipe, the pipe having an internal diameter, comprising:

applying a first support means and a second support means to the pipe to partially circumscribe the pipe;

connecting a first end of the first support means to a first end of the second support means; and

applying a compressive force with a compression means until the internal diameter of the pipe experiences compressive hoop strain.